ABSTRACT OF THE DISCLOSURE

The armature of a direct-current motor is formed by an armature core and armature coils. The core includes teeth, which are arranged at a pitch of a predetermined angle. The coils are wound about every group of selected teeth of a predetermined number. Two magnets face each other with the armature in between. Each magnet includes main portion, an extended portion, which extends from the main portion, and a first weak flux part. The first weak flux part is located in the vicinity of the border of the extended portion and the main portion. The first weak flux part extends along one pitch of the teeth. The flux of the first weak flux part gradually increases along the rotation direction of the armature. The motor also includes a commutator, which has segments. The segments are connected to each coil. A pair of brushes can contact each segment. The brushes supply current to the coils through the segments. During commutation, each brush establishes a short circuit in an adjacent pair of the segments, thereby changing the direction of current flowing through the coil. When commutation is started, the advancing end of the first tooth in one of the teeth groups, the first tooth being located at the most advanced position in the group in the rotation direction of the armature, is aligned with the first weak flux part of one of the magnets.